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SHELTERING THE GENIE: THE LIC THREAT TO NUCLEAR SYSTEMS

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International terrorists are alive and well. Whether acting alone or for the benefit of a foreign government, they are beginning to penetrate American society as never before. Until recently, the terrorist threat to US assets and citizens was more or less confined to incidents outside the country. As terrorist organizations become increasingly frustrated with their operations overseas, the incentive to operate within US borders increases. Another factor is the tendency for terrorists to undertake more and more shocking violent actions in order to maintain the public's attention (mid-air bombings have certainly achieved this goal for now). This paper will attempt to explain the nature of the threat and recommend possible preventive or remedial actions government can take.

ABSTRACT

The decreasing tension between the United States and the Soviet Union obscures a harsh reality. In a world where the probability of a nuclear exchange between the two superpowers is at its lowest point since the early 1950s, American nuclear weapons are more vulnerable than ever to "low intensity" threats. Some terrorist organizations have become sophisticated enough to actually steal or destroy a warhead, while the Special Purpose Forces of the Soviet Union retain the capability to curtail the reliability of American strategic systems from within the United States or Europe. These two very real threats are derived from the same factors - the openness of American society, and the enormous difficulty of providing security for these weapons. Because it is difficult to separate terrorism issues, the analysis of possible outcomes goes beyond the weapons themselves to include nuclear materials and power plants.

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PART I
TERRORISM AND LOW INTENSITY CONFLICT

There are two fundamental forms of political violence - war and "Low Intensity Conflict", or LIC. War has punctuated the entire historical process and is relatively well understood. Low intensity conflict is a comtemporary phenomenon that permeates modern society but is little understood. Because low intensity conflict is rapidly supplanting war as a path to conflict resolution, the field of National Security Affairs is transforming itself from the study of war to the study of LIC. War and LIC are qualitatively different, presenting governments with different sets of choices and requiring different actions. In order to discuss terrorism, we must first discuss LIC, for LIC is the context within which terrorism takes place. (1)

Low intensity conflict is an ambiguous term that means different things to different people. The Department of Defense has defined LIC as follows:

> "Political-military confrontation between contending states or groups below conventional war and above the routine, peaceful competition among states. It frequently involves protracted struggles of competing principles and ideologies. Low Intensity Conflict ranges from subversion to the use of armed force. It is waged by a combination of means, employing political, economic, informational, and military instruments. Low Intensity Conflicts are often localized, generally in the Third World, but contain regional and global security implications."(2)

Since LIC contains the word "conflict", a common misconception has been that it is therefore DoD's problem to solve (indeed, the remaining branches of government do not even define the term). This is an outgrowth of long US Government experience as well as the inadequacy

of the term itself. The military has always been called upon to "take care of" political situations not lending themselves to diplomatic or economic solutions. The American experience from the end of World War II through the invasion of Panama has prompted many, both military and civilian, to question the wisdom of that approach.

The term Low Intensity Conflict raises questions, however. The first is, "Low intensity relative to what?" The second is, "What is conflict?" The third is, "How is LIC different from what we think of as war - and peace?" In other words, in order to use the term, we must explain why it is needed. We must prove that LIC is not simply a new military "buzzword" and why it requires government officials to use an entirely different decision-making process.

In response to the first question, we can say that LIC is low intensity relative to conventional or nuclear war. A LIC event will not trigger the massive and unanimous government response that war always does. It will not involve sustained combat for conventional military forces, and it does not usually drain the treasury. Low Intensity Conflict military responses are constrained, both in terms of scope and time. The military instrument is used only some of the time, and even then in a measured way.

The answer to the second question is that the "conflict" in LIC is political conflict rather than military. Even in cases where military forces are to play a part of the solution, the conflict is political. In resolving a LIC situation, the military dimension of the solution can only be effective after the political conflict is resolved. That is why LIC is often referred to as politico-military conflict, whereas war is sometimes called armed conflict.

To answer the third question, LIC is neither peace nor war but somewhere inbetween. It is, at the same time, peace without stability and war without victory. Within the LIC environment, it is in government's power to control the character of the conflict. Events can be brought to resolution (or peace as we generally understand it) through the patient

application of a cohesive government strategy. On the other hand, if LIC events are mismanaged, they can lead to war. This is what happened in Vietnam.

In order to understand LIC completely, it is necessary to understand the concept of legitimacy. In war, the disputants fight for terrain; in LIC, they fight for legitimacy. There is only so much of it to go around. As in a tug-of-war, what one side loses the other side gains. Nations combatting terrorism often resort to brutal tactics which increase the legitimacy of the terrorists relative to the government. This is what happened to the French in Algeria - revelations of government torture helped the terrorists re-define themselves as freedom fighters. The government finally withdrew. The real challenge is not to defeat terrorism but to defeat it without forfeiting legitimacy.

The remaining key consideration when thinking about LIC is the concept of perspective. Low Intensity Conflict for the US Government is usually war for another government. For the United States, civil war in Nicaragua is LIC. This does not mean that the conflict itself is less intense but only that American involvement in it is less intense. Even the "war" on terrorism is not a war. The worst terrorist events remain in the LIC regime because the combatants are hidden among the people and do not threaten national survival. Counter-terrorism efforts are defined by the constraints of LIC management, and in an open society such as the United States, these constraints are significant.

This takes us back to the hypothesis that there are just two paths to conflict resolution - war and LIC. In response to world events that disturb peaceful relationships, the US Government must use one path or the other. If we choose the path of war, the Pentagon is well-prepared to carry out a national military strategy crafted to attain the political objective sought (normally national survival). If we choose the path of LIC, the whole government must become involved in a constellation of activities - some military, but most not. The national survival is not threatened directly, and there is always a debate within the government regarding which actions may or may not be appropriate. Military forces

are just one of the four basic tools the President can utilize in resolving LIC situations. The other three are political, economic, and informational - and they normally need to be applied before armed forces are engaged.

The large number of government actors that must interact to solve LIC problems complicates the process enormously. There are no set rules, formulas, or plans for LIC situations. Each one is unique, and each one requires a tailored mix of the four government instruments. The absence of a permanent executive agent for all LIC management places a tremendous burden on the only supra-departmental organization available - the National Security Council. The NSC is the only body that can pull together all the resources the government needs, but it is not structured for managing all the LIC tools in an orchestrated effort. The MacFarlane NSC got into trouble because it tried to be something it wasn't designed to manage. The NSC staff is a policy guidance factory, not a management organization. But there is a management vacuum that must be filled each time a LIC event emerges - and NSC is the only staff available to fill it.

There are four basic types of LIC events that the US Government must respond to - terrorism, insurgency, regional conflict, and international narcotics trafficking. The variations on these four themes are practically endless, but together they define the environment we call LIC. The American response to the Achille Lauro hijacking was markedly different than was its handling of the Dozier kidnapping. Both were incidents of international terrorism, however each required a completely unique approach. Similarly, the Marxist insurgency in El Salvador has been treated very much differently than the Marxist insurgency in the Philippines. In both cases the US maintains strong (if not vital) national interests, but differences in geography, politics, insurgent tactics, and host government attitudes have dictated dissimilar US Government strategies. The US was brought to the very fringe of the Iran-Iraq war because of political competition with Moscow as well as the strategic importance of Persian Gulf oil. There was no similar response, however, in the case of the recently-resolved Vietnamese occupation of Cambodia (neither is the US taking an active role in the lingering

insurgency there). Many of the same types of factors have dictated different US Government approaches to reducing the supply of cocaine from several South American countries.

Terrorism is the LIC event that demonstrates the severity of the government's management problem most effectively. Since the requirement for action in terrorist situations is compressed into days or hours, there is very little time to formulate the unique strategies required for each particular situation. The White House (through the NSC crisis staff) immediately takes control and must maintain it thoughout the incident. The Defense Department, State Department, CIA, and others are called upon to provide information and proposed courses of action to individuals not trained or organized to evaluate them. If the wrong mix of government instruments is decided upon, Americans may die, international relationships may crumble, and US prestige may suffer. All we know about the next terrorist incident is that it will occur. We don't know when it will happen - nor do we know which type of terrorism it will be.

PART II
THE CASE FOR NUCLEAR TERRORISM

Nuclear weapons have kept the world safe from nuclear war for more than forty years. The current trend towards reduced stockpiles of nuclear weapons among the superpowers is matched, however, by several trends which threaten to interrupt the balance of terror we call deterrence. Some terrorist organizations have become sophisticated enough to actually steal or manufacture nuclear weapons. As if this were not frightening enough, some nations now support those terrorists in their struggle against Western values and ideas. The combination of terrorist and state sponsor has elevated the threat of nuclear terrorism to dangerous proportions. (3)

There are two fundamental schools of thought relative to nuclear terror. One school says that it is not likely because theft or manufacture of a weapon is too difficult. Proponents of this school also cite the relative ease with which terrorists could employ chemical and biological agents to inflict mass casualties. The other school of thought recognizes nuclear terror to be inevitable. For proponents of this school, state sponsorship has placed certain terrorist organizations on the brink of armageddon. Both schools are based in data and logic, leaving decision-makers to sort out the realities of budgeting and planning.

One of the problems decision-makers face right away is that there is no universally accepted definition of terrorism. Definitions are only important because they summarize agreements and understandings, but they are important. There are no agreements or understandings relative to nuclear terror. It would difficult to argue, for instance, that the doctrine of "Mutual Assured Destruction (MAD)" is not a form of terrorism. Indeed, that is precisely the argument that some terrorist organizations and their state sponsors have begun to voice. Brian Jenkins has observed that terrorists imitate governments. The possession of nuclear weapons by major nations makes those weapons somehow "legitimate". (4) Deterrence of nuclear war has worked well for the

TERRORIST MOTIVATION AND NUCLEAR VIOLENCE OPTIONS

	IDEOLOGICAL	RELIGIOUS	NATIONALISTIC	CRIMINAL	NIHILIST
FISSION BOMB	1	2	3	1	1
DISPERSAL DEVICE	1	2	3	1	2
RADIOLOGICAL POISONING	1	1	1	1	1
NUCLEAR POWER PLANT ATTACK	2	2	2	1	2
NUCLEAR WEAPONS FACILITIES ATTACK	2	1	1	1	3

FIG 2-1

superpowers, but it may now be responsible for increasing the probability of nuclear terrorism. Whether they call themselves freedom fighters or defenders of the faith, some terrorist organizations are now capable of destroying cities, and the major nations have given them the philosophical green light. (5)

The identification problem reaches extreme proportions when states themselves resort to terrorist tactics during periods of general peace. Victor Suvurov describes the Special Purpose Forces (SPETZNAZ) of the Soviet GRU as having the responsibility for conducting terrorist acts against Western adversaries. (6) There are two basic SPETZNAZ missions - to destroy the enemy's system of government, and to destroy his nuclear capability. To be successful, these operations have to be undertaken before the initiation of overt hostilities (in other words, within the LIC environment). In this sense, the protection of nuclear weapons and systems against terrorism must include protection against SPETZNAZ.

Nuclear Violence Options. Terrorists have five options for inflicting nuclear devastation. They can explode a nuclear fission bomb, make a dispersal device, poison large numbers of people with radioactivity, attack nuclear power plants, or they can attack nuclear weapons facilities. Figure 2-1 plots these options against the five principal types of terrorist groups according to motivation. The product of each matchup is a relative probability of occurrence. The numbers are judgments, based upon general capabilities, history, and motivation. They indicate possible resource investment priorities. They also give us a place to start in assessing the problem.

Hezbollah, for example, might be perfectly willing to use a fission bomb but does not have the infrastructure to support construction - or the geographic position to steal a weapon. The Abu Nidal Organization, on the other hand, supported by Libya, has the mobility and the funding to acquire a bomb. Nihilist organizations such as the German Red Army Faction are a threat to Americans in Europe but have little incentive to initiate a nuclear device (although they might very well instigate a

political crisis through sabotage of nuclear facilities). Ideological terrorists, epitomized by the New People's Army of the Philipines, will target US facilities without regard to their purpose. Criminal terrorism, recently introduced by the cocaine cartels of Colombia, has not yet migrated to the United States. Displaced Palestinians still represent the greatest threat.

There are just two ways to get nuclear explosives; they must be stolen or constructed. Radiological weapons are relatively easy to make, and if nuclear material can be stolen, such weapons could be the principal threat to society. Nuclear reactor sabotage cannot be discounted, particularly in the wake of the disaster at Chernobyl. Terrorists terrorize, and Chernobyl terrorized everyone who lives in nations with nuclear power plants. The threat of terrorist or SPETZNAZ attacks against nuclear weapons storage sites and systems, though difficult, must be ranked as on of the most serious possible outcomes.

Theft of a Nuclear Weapon. The superpowers have expended considerable effort over the last forty years to ensure that access to nuclear weapons is reserved for only those personnel directly involved with their manufacture, storage, and employment. While that amounts to a large number of personnel, the security systems that have evolved are essentially sound. This does not mean terrorists cannot steal a weapon, however, and total security is elusive.

This is particularly true in the transportation phase of the stockpile-to-target sequence. As weapons are taken from storage and either flown or driven to the launch site, they immediately become more vulnerable to theft. Smaller weapons are the most vulnerable. Public disclosure of "backpack nukes" stockpiled in Germany was especially troublesome in the early 80s. These weapons are literally portable and would be the weapon of choice for terrorists worldwide. The number of terrorist organizations capable of stealing a weapon on the road is far greater than the number of groups potentially capable of constructing one. Theft of even a heavily-guarded nuclear weapon in transit would require tactics

and equipment already well-known to most terrorists and could presumably accomplished without state support.

The Department of Energy and the Department of Defense conduct regular (although not very frequent) exercises to ensure the security of nuclear weapons in transit. The fact that a weapon has never been stolen, however, does constitute the only measure of their effectiveness. It is not the large number of US nuclear weapons but rather their dispersal that creates the biggest security risk. On a systems level, warheads are kept in a central facility under heavy security while the rest of the system is kept available to military units for training and maintenance. By minimizing the number of storage sites, planners can improve the security posture for stored weapons.

On a higher level, worldwide dispersal of nuclear weapons is a key component of nuclear strategy and foreign policy. The US policy of Soviet containment has driven successive administrations to deploy nuclear weapons outside the boundaries of the United States. These weapons include portable Atomic Demolition Munitions as well as bombs, artillery shells and missiles. The "forward defense" of the United States has long been touted by those administrations as essential for the protection of vital US security interests. Although it would certainly be better for us to fight a future war overseas, the preparation for such a war has led us to disperse our nuclear weapons dangerously far afield.

Construction of a Nuclear Weapon. There is no longer anything mysterious about the construction of a crude nuclear device. As several college students have shown us, the design for a rudimentary fission bomb is simple enough to be undertaken by a reasonably well-trained mind. Admiral Thomas Davies tells the story of a physicist who, inspired by a junk dealer's add for surplus US Army "Honest John" warheads (disarmed and without fissionable material), commissioned an electical engineering student to design a nuclear weapon that could be built in a garage. A crude bomb design, said to be potentially functional, was produced in about forty hours. (7) Under present plans, the amount of separated Plutonium derived from commercial power reactors overseas

will exceed 400 metric tons by the year 2000. Only about 15 pounds are needed to construct a fission bomb. (8)

We must conclude, then, that terrorists are capable of designing and building nuclear weapons. The bomb would not necessarily be efficient or powerful, but the only measure of effectiveness needed would be whether or not it could be detonated. If a certain group needs the experts to actually do it, we must assume they will find them. There is no other basis upon which to plan the government's possible courses of action. There is no point in debating the possibility - it exists. The probability may be quite low, but the probability of all terrorism is quite low (the chances of any individual becoming the victim of of a terrorist attack are on the same order of magnitude as being hit by lightning). With a nuclear event, however, probability is meaningless. Beyond the physical devastation would be widespread panic and the psychological impact of government powerless to protect its citizens.

Construction of Radiological Weapons. It is much easier to build a radiation dispersal device. Assuming that terrorists can obtain Highly-enriched Uranium or Plutonium, the basic design is not much different from a nail bomb. Any device that will throw radioactive material far enough to contaminate a densly populated area would cause very serious near-term and long-term damage to everyone who managed to survive the blast. As far as we know, there are an estimated 9,600 pounds of Highly-enriched Uranium and Plutonium unaccounted for in the United States alone. (9) Terrorist bombs, made with abundant plastic explosives, are detonated somewhere in the world almost every day.

Of course, the psychological impact of a dispersal device would not approach that of an actual nuclear detonation. Moreover, if terrorists wanted to save some effort, they could terrorize whole cities by threatening to dump their radioactive material into water sources in the mountains. The possibility of a radiological weapon, however, cannot be ruled out by government planners. Additionally, government measures aimed at preventing terrorists from constructing dispersal devices are the same as those for preventing the construction of explosive devices - deny

terrorists the opportunity to steal fissionable material. Even though enormous quantities of material remain unaccounted for, the US Government must assume that strict accountability from here on will reduce the likelihood for development of both types of terrorist tools.

Nuclear Reactor Sabotage. The prospect of terrorists penetrating a nuclear power plant is easy to imagine. Even though most plants are now protected to a greater degree than ever before, they are still more vulnerable to attack than nuclear weapons facitlities protected by the Defense Department. One of the reasons for this is that they are easier to get to. Another is that the attractiveness of these plants to terrorists is a matter of debate. In response to postulated scenarios involving truck bombs detonated near nuclear power plants, the Nuclear Regulatory Commission has been studying whether or not additional hardening is necessary. The NRC has always maintained that its security measures assume that the United States will continue to have general civil order. Ostensibly, if that order were to break down, military forces would be dispatched. This is not the answer, however, because the same breakdown of order would likely exceed the capacity of US-based military forces to execute military functions.

The sabotage option cannot be discounted, though, especially after Chernobyl. Of the potential targets we are discussing, nuclear power plants are the most vulnerable. They are also, thankfully, the least attractive to terrorists. US plants are not Plutonium-based and do not produce Plutonium. Additionally, licensed research reactors have been modified to use low-enriched Uranium. The NRC is probably correct in placing more of its concern on safe operation and less on trying to fortify its plants DoD-style. Transportation of the Highly-enriched Uranium still utilized is NRC's biggest problem.

Attack on Nuclear Weapons Facilities. American nuclear weapons plants and storage facilities can be attacked by well-trained, extremely motivated terrorists. It is doubtful, however, that even the most highly trained and motivated can get away with a weapon (although the attack itself could have significant impact on US policy). The locations of

European storage sites are well known, and nihilist organizations based in those countries have demonstrated enough distaste for the American presence to attempt such attacks. The only way to prevent these relatively low-risk, high-payoff terrorist operations would be to remove US nuclear weapons from European soil altogether.

State Sponsorship. The spectre of nations assisting, encouraging, and even recruiting terrorists as proxy forces has elevated the threat of nuclear terrorism from fiction to expectation. With the money, diplomatic protection, and engineering support of such nations as Iran and Libya, terrorists must now be considered capable exercising any of the above options. State sponsors implement their own violent agendas through terrorists. For the planner, state sponsorship complicates the prevention/response equation even further. Nuclear terrorism has become a foreign policy problem as well.

State sponsorship entails more than simply paying a terrorist organization to carry out attacks against other nations and individuals. Libya's Khaddafy has long supported Palestinian (and many other) terrorist groups in their attacks against American targets in Germany. A short while after he was punished with an American air raid, certain West German companies were caught supporting Libya's efforts to develop a chemical weapons plant. The German government hesitated at first to investigate the allegations and only later admitted that its industries had provided the materials and expertise. This is state support, if not state sponsorship.

In the same way, those nations which do not adhere to the Nuclear Non-proliferation Treaty of 1970 enhance the opportunity for nuclear terrorism. Israel is widely believed to have developed nuclear weapons (possibly as many as 200) but has not signed the treaty. Neither have Argentina, Brazil (reaffirmed in April 1990), Pakistan, Saudi Arabia, and South Africa. The international non-proliferation regime is helpful but not particularly effective. Just as locks are for honest people, the NPT is for nations predisposed to safeguard against proliferation. The Middle East is experiencing a nuclear arms race that threatens all nations.

The Role of Superpowers. The superpowers bear major responsibility for the so-called "vertical proliferation" of nuclear weapons. It is only within the last year (Gorbachev's 5th year) that serious nuclear arms reduction appears possible. The example this trend sets for the rest of the world cannot be overstated. It could mark the beginning of the end for nuclear war as a foreign policy option. The final act will have to be to reign in the new members of the nuclear club and prevent all nations from contributing to nuclear proliferation and terrorism. This must entail imposing superpower will upon nations that choose to develop weapons as well as those which continue to separate Plutonium in their reactors.

The key to international control will be US-Soviet cooperation on a series of agreements regarding how to treat nations which violate the rules. The April 1986 bombing of Libya (and the resulting decrease in Khaddafy-sponsored terrorism) should serve as a precedent for superpower control of Third World terrorist options. The credibility of conventional retaliation for terrorist nuclear violence would be enhanced through the formal conclusion of an agreement. Preemption of Third World nations that prepare to use nuclear weapons against each other should be the next step after that. Terrorists and their sponsors will need the spectre of superpower solidarity. The world needs more than a policeman in the aftermath of the Cold War - it needs a police force.

PART THREE
PROGNOSIS AND TREATMENT

The differences between LIC and war are generally simple to explain. War involves sustained combat between the armed forces of nation-states. It is fought for clear, military objectives, normally without constraints, against a commonly recognized threat. LIC, on the other hand, involves irregular struggles with sub-national entities. When military forces are utilized, it is for political objectives and in combination with non-military measures against a non-consensus threat. Terrorism and government measures to combat terrorism lie on the very seam between LIC and war. Decision-makers must decide how to fight a "war" that, inconveniently, resides in an environment of Low Intensity Conflict. (10)

When military forces are called upon to strike directly against terrorist targets, political obstacles intrude immediately. The rescue of Americans held hostage, for instance, collides with legal constraints inside the United States and diplomatic constraints overseas. The Posse Comitatus Act proscribes military forces from conducting law enforcement operations on American soil. This has required the FBI to develop a parallel military hostage rescue capability. The US Navy's capture of Palestinian terrorists over the Mediterranean in October of 1985 demonstrated that a military success in LIC can be a political failure.

Given these constraints, the defense department's very capable "Counterterrorist Joint Task Force" has never been used for direct strikes against terrorists in the ten years since it was formed. Because of these difficulties, the task force has gradually evolved to become the president's general purpose "rapid deployment force", seeing action in Grenada and Panama. Counterterrorist forces, having little real utility other than deterrence, are looking for work. The political difficulty of attacking terrorists militarily could not be demonstrated more clearly.

Indirect actions, both military and non-military, have been the rule in the field of countering terrorism. The State Department has lead agency responsibility for countering terrorism overseas, and virtually all of its energy is channelled into international agreements and bilateral training programs. US military counterterrorist forces do participate in the fight against international terrorism, but they do it behind the scenes as trainers and advisors. At home, these elite units cannot be utilized to prevent or respond to criminal activity. And that is precisely what terrorism is - criminal behavior cloaked in political sloganeering. The problem is that terrorist crimes, whether they be domestic or international, can now threaten the lives of millions of people.

The Department of Defense spends most of its time and money deterring and preparing for general war with the Soviet Union. Although it is going on all the time, Low Intensity Conflict receives far less attention. The rule is this: Leaders must be prepared to deal with the most important possible outcomes before they tackle the most likely. This does not, however, remove from them the responsibility for conducting military operations in the LIC environment. The difficulty of using military tools in LIC was demonstrated most recently in Panama, where the economic sanctions applied in early 1988 did more damage than the invasion finally launched almost two years later. For all forms of terrorism where low numbers of individuals are victimized, relatively meager defense resources can be committed. Nuclear terrorism, however, must be grouped with the most important possible outcomes to plan for. Like general war, it is not likely; but it cannot be allowed to happen.

Deterring Nuclear Terrorism in a LIC Environment. Louis Rene Beres, citing Kafka, characterizes the government's dilemma as a choice between the doctor and the locksmith. (11) In other words, in order to deter terrorists from going nuclear, we can try to convince them that nuclear targets are counterproductive - or we can harden all the possible targets. Actually, there is no reason to have to choose. We must call upon the doctor and the locksmith to work together.

The Doctor. Behavior modification has not been particularly successful in the general case, but recent events offer some optimism. In the late 1980s, mainstream PLO terrorists became convinced that violence outside the occupied territories provides a disincentive for other nations to pressure Israel to trade land for peace. Although radical factions of the organization continue to strike international targets, the Arafat following has refrained. In January of1990, Colombian president Virgilio Barco was able to convince the M-19 terrorist organization to lay down its weapons and become a legitimate political party. Even the April murder of its leader, presidential candidate Carlos Pizarro, has not galvanized M-19 to return to the jungle. In both cases terrorists with a history of extreme violence decided that certain forms of behavior will not get them what they want. Diplomatic action can have positive impact and should be part of an integrated approach to deterring nuclear terrorism.

One of the problems with behavioral strategies is that all terrorists are not created equal. As discussed in Part II, each type of motivation produces a fundamentally different genre of terrorist. In an academic context, mischaracterization is relatively harmless. In the managment of a nuclear incident, however, mischaracterization could lead to the application of inappropriate government tools - and disaster. What we write and say can have a significant impact on what terrorists attempt to do. Treating religious zealots the same as nihilists is a prescription for disaster (without the prospect of martyrhood, Red Army Faction terrorists are much more likely to respond to armed threats than Hezbollah).

The doctor's prescription must include some rules for the media. In a very objective piece on the subject, Sander Vanocur makes the point that, although the jounalist has a job to do, the Constitution says nothing about "the people's right to know". (12) As government officials frame a strategy of behavioral deterrence, the media must be made aware that they are often a tool of the terrorist. Mere recognition is insufficient, however; the major networks must pledge not to compete for terrorist business. Reporters must become part of the solution rather than part of

the problem. In this effort, consideration should be given to managing a media "pool" during terrorist incidents and providing a single government point-of-contact from which reporters can glean information. This might sound draconian to a journalist, but it has worked for the defense department in other Low Intensity Conflict events (most recently Panama).

Brian Jenkins has observed that most terrorists come from the departments of social sciences and humanities. (13) This may help explain why the technically demanding project of nuclear fission has not been undertaken successfully. It may also provide government planners with some hope of convincing certain terrorists that nuclear violence is counterproductive. Fortunately, the most destructive-minded terrorists are usually the least educated. The same general rule seems to apply to criminals. One goal should be to keep educated terrorists engaged in the "white-collar" manifestations of political dissent. European nihilist organizations, ironically, could be the easiest to deal with non-violently. Ideological and nationalistic organizations usually lack the education and technical sophistication; but with their proclivity for state support, they are especially dangerous. This is why it is imperative that governments follow a dual-track strategy .

The Locksmith. The typology introduced in Part II is a good place to begin discussing measures to harden nuclear targets. The first step, of course, is to identify precisely what it is we are trying to prevent. In descending order of criticality, these events are:

-Theft or fabrication of a nuclear explosive device.
-Radiological poisoning of large numbers of people.
-Manufacture of a radiological dispersal device.
-Attack on a nuclear weapons facility.
-Attack on a nuclear power plant.

If we distill this array into a pure physical security context, the following protection tasks emerge:

-Prevent theft of nuclear weapons.
-Prevent theft of fissile material (Highly Enriched Uranium or Plutonium).
-Prevent attacks on nuclear power plants.

The record shows that between 1970 and 1985 there were 12 events that could legitimately be included under these groupings. (14) Of the 12, seven were actions against nuclear power plants (mostly in the Basque region of Spain). There were four attempts by state supporters of terrorists to steal or manufacture nuclear explosives - one by Idi Amin, and three by Muammar Khaddafy (who apparantly has a standing cash offer for the delivery of a nuclear device to be used against the West). The sole incident involving a weapons facility was a 1985 demonstration explosion followed by a threat to attack the Woensdrecht airbase where the Dutch government had authorized placement of US Ground Launched Cruise Missiles. Only one of the incidents occurred in the United States (the 1976 bombing of a power company headquarters in Maine), and even that event was not a direct attack on the power plant itself. There were 41 other "nuclear-related" incidents, all symbolic attacks or threats far removed from nuclear targets.

What this small data base suggests is that nuclear violence is not something even the most hardened terrorist organizations readily turn to. Terrorists, particularly the ideologically driven, understand the concept of legitimacy. Like any political organization, they attempt to develop and nurture a constituency. They are, in this sense, at the mercy of the public minset. Though massive violence is not always helpful for all terrorists, the problem for planners is that they must assume worst case. In the domain of counter-nuclear terrorism, there is no room for error.

Preventing Theft of Nuclear Weapons. Fortunately, stealing a nuclear weapon is difficult. It is difficult because there is consensus and money to provide multi-layered, electronically sophisticated defenses around storage sites and operating systems. This does not mean, however, that penetration of nuclear weapons facilities is impossible. There are many terrorist organizations capable of at least getting to a

weapon. In the case of nuclear weapons, that may be enough to impact on the US Government and its interests significantly. The siezure or damaging of a weapon in Europe, for instance, could precipitate the withdrawal of US nuclear weapons from one or more nations. This could happen even if the terrorists had no chance to actually detonate the weapon.

Detonating a stolen nuclear weapon poses additional problems. Permissive Action Links (PALs) are built into most weapons. "Command-disable" and "One-point Safe" features further protect against unauthorized detonation. These measures, if applied consistently, would stop all but the most determined terrorists - but they are not yet universal. The US Navy has long cited the complex shipboard launch sequence as rationale for not using PALs on its seaborne weapons. The process, which can involve up to 30 individuals, appears to insure against unauthorized release but would not be a factor if seaborne weapons were hijacked. One of the keys to preventing attempts to steal nuclear weapons would be to convince terrorists that all US nuclear weapons are useless to them. For that effort to be credible, the Navy would have to adopt the same physical security standards as the rest of the Defense Department.

Perhaps the greatest threat resides in the Third World. As more and more nations develop nuclear weapons, it becomes increasingly difficult for the United States to ensure that its citizens are not vulnerable to nuclear violence. New members of the nuclear club (Israel and possibly South Africa) do not even acknowledge the existence of their weapons. It is virtually impossible for the US to influence their security regimes until they come out of the closet. As new weapons are developed, they will be more vulnerable than US weapons. They might be stored with less physical security, and they will certainly not have PALs. Planners looking for worst-case scenarios need look no farther than the Middle East where the race for the Islamic bomb continues. State sponsorship, characteristic of that region, may soon combine with nuclear technology to free the terrorist from having to steal anything.

Preventing an attack on a nuclear weapons facility can be grouped together with the prevention of theft. If security systems are designed to deter penetration of the facility, they will also serve to insulate that facility against sabotage. Protecting nuclear weapons involves more than simply sound physical security. Denial of access is the key to preventing attack, whether by means of a traditional, military-style raid or through an inside job. Personnel reliability screening is just as important as layers of fences and sentries.

As the number of facilities increases, however, the degree to which they can be protected decreases. Resources, even for the prevention of nuclear sabotage, are limited. In some scenarios, the spreading of storage facilities can be desireable. Particularly in Europe, the distance between the stockpile and the launch system dictates the speed with which a nuclear response can be delivered. More storage sites, farther forward, means less security on each site but reduced requirements for transportation of warheads. In Europe the trend has been towards centralized storage. This probably helps protect against the average terrorist but increases America's strategic vulnerability to SPETZNAZ targeting just prior to war.

Certainly the United States must continue to invest significant amounts of resources (both manpower and money) in the protection of nuclear weapons. Facilities, transportation systems, and operating systems must be secured beyond any stretch of the prolific terrorist imagination aimed at their siezure. The theft of a weapon must be so difficult that terrorists dedicated to initiating nuclear violence will have to pursue the much-more-difficult option of constructing a weapon.

Preventing Theft of Fissile Material. There are literally thousands of tons of Enriched Uranium and Plutonium in the world. It is virtually impossible for the United States to prevent terrorists from obtaining enough material to construct a nuclear weapon (15 pounds of Plutonium). Terrorists bent on radiological poisoning or dispersal of radiation with conventional explosives could do it with even less material. The United States has taken significant preventive measures by reducing the use of

Highly Enriched Uranium in research reactors and abandoning the use of Plutonium in nuclear power plants. The "Fast Breeder" concept, wherein weapons-grade Plutonium is actually produced by the reactor, has also been abandoned.

The problem we do not seem to be able to solve is, again, overseas. Other Western nations (and Japan) continue to use Plutonium and breeder reactors. Despite assurances that all separated Plutonium is under strict accountability, the terrorist has a steady source if he wants it. The "Fort Knox" strategy for storing separated Plutonium in the US would not protect our citizens to any greater degree. It would appear that the only way to contain the problem (since we can't put the genie back in the reprocessing plant) is to convince the general public that terrorists have no incentive to use the materials for mass destruction. Regrettably, the argument would have to be that car-bombs are already effective enough, and poisoning the water supply of a major city can be accomplished more easily with LSD.

Preventing Attacks on Nuclear Power Plants. There are approximately 370 nuclear power plants in twenty-seven countries, with more on the way. Concern over global warming has driven even some hard-core anti-nuclear activists to the realization that nuclear generation of electricity is less damaging to the environment than conventional means. Although the operating reactors in the US are quite vulnerable to terrorist attack, the amount of nuclear violence that could be produced is a matter of debate. Whether or not a "van-bomb" exploded in the visitors' parking lot of a well-advertised nuclear power plant could cause the release of radioactive material, there remains a perception that such an event could take place. (15)

And that is enough. As with so many other manifestations of terrorism, the perception of what can be done is more important than the reality. This is the essence of terrorism - to instill fear in the people so that government will be either forced to change fundamentally or quit altogether. If the general public can be convinced that power reactors are invulnerable to stand-off rocket attacks and the direct application of

demolitions, then terrorists will acquire a disincentive to plan such operations. (16) Removing fear is not only more effective than layers of additional security (which is already substantial), it is much less costly. As members of the general public, terrorists can be persuaded that there is no profit in attacking these facilities; however, as long as they believe that nuclear reactors are vulnerable, terrorists will attempt to target them in some fashion.

Other Considerations. There is more to defeating nuclear terrorism than just the doctor and the locksmith. Robert Kupperman suggests that there is no compelling reason to narrow our counterterrorism options. He asserts that the best declaratory policy is no specific policy at all, but rather an expanded menu of counterterrorism tools. (17)

Regrettably, there is also a role for the exterminator. The spectre of nuclear violence should drive us to using such a tool - if we can develop the political will to use the military capability we already possess. The exterminator should be available both before and after every indication that terrorists intend to go nuclear. Whether he takes the form of a lightning raid or a single individual, well-placed within a terrorist organization, the elimination of nuclear-minded terrorists must be part of the menu; and all terrorists must know it.

Amiram Nir has suggested that any effective counterterrorist strategy must be comprised of defensive measures, offensive actions, and intelligence efforts. (18) Israel has demonstrated consistently that good intelligence is the keystone to all other counter-terrorist actions. The Israelis have also shown us that attacking terrorists (or state sponsors) is very effective, at least in the short term. Whether or not the US military's role is ever expanded to include pre-emptive strikes, the need to improve American intelligence capabilities in Low Intensity Conflict is acute.

During the late 1970s, the Carter administration made a deliberate decision to reduce CIA reliance on human intelligence methods. The clandestine arm of the agency was drawn down drasically while overhead

surveillance systems were improved. The resulting strategy of almost total reliance on "National Technical Means" did not anticipate the advent of Low Intensity Conflict.

There is no way around human intelligence when it comes to finding out about terrorist organizations. Governments must do whatever needs to be done to infiltrate the organizations. In cases where plans for nuclear violence are uncovered, the potentially extraordinary ramifications serve to justify offensive military action, but without timely and accurate intelligence, targeting terrorists where they live is impossible. Without human intelligence sources and methods, no intelligence will be produced. Therefore, part of the solution to preventing and deterring nuclear terrorism is the re-orientation of US intelligence agencies away from general war and towards Low Intensity Conflict.

Managing Nuclear Terrorism. The final consideration regarding nuclear terrorism is that of managing a nuclear terrorism event. Of one thing we are almost certain - that event will not commence not with a blast but with a drama. The US Government spends almost all of its counterterrorism resources trying to prevent terrorist attacks with little thought to minimizing the consequences of a successful attack. (19) The same thinking prevails at the level of strategic nuclear war - civil defense takes a back seat. The major reason for this could be that elected officials do not want to create the impression that government cannot prevent the worst disasters. But the protection of the homeland and its people is the first responsibility of government, and systems to manage nuclear terrorism must be in place at all levels.

This is not the case. Local and state "Emergency Operating Centers (EOCs)" are, as usual, the most effective management organizations. They are staffed and trained mainly to manage natural disasters, and the frequency of these occurrences guarantees their basic efficacy. At the federal level there is the Federal Emergency Management Agency (FEMA), whose charter it is to link together all state programs into a national level management system. For a nuclear terrorism event FEMA

does not have the resources or the authority to coordinate the numerous government organizations and their efforts effectively. The biggest reason for this is that FEMA must rely on other organizations to collect and disseminate vital information. (20) Robert Kupperman explains what would happen in response to a threat from terrorists to shoot down American airliners at Stapleton Field in Denver unless certain terrorist prisoners are released:

> "Immediately following the release of this hypothetical demand, a myriad of government bureaucracies would leap into action, albeit not necessarily in the same direction. The FBI, state, and local law enforcement officials would be charged with determining whether the threat is real, as well as with apprehending the perpetrators. The US and State Attorney Generals' offices would be involved in any decision to release (or not to release) prisoners. The US State Department would have primary responsibility for dealing with foreign terrorists in a manner that is consistent with US antiterrorism policy, while Defense Department and CIA officials would be involved in threat assessment and potential military responses. The Airline and Pilots Association and FAA would have concerns about the air safety considerations of not acceding to the terrorist demands. The Federal Emergency Management Agency and state emergency apparatus would be charge with civil preparedness measures. Local and state politicians in Denver would be concerned with the local public relations crisis and with defusing the public panic. The White House and Congress would have a vested interest (although from different perspectives) in demonstrating decisive leadership during the crisis."(21)

For a nuclear terrorism incident, one must add to this list of participants the Department of Energy's Nuclear Emergency Search Team (NEST). The sense of panic all over the country would render effective government response next to impossible.

Exercises conducted by DOE and DOD have consistently surfaced the major problem with managing such an incident - lack of central authority. The biggest part of the problem is that military response forces (the Counterterrorist Joint Task Force) does not work for the "Defense Senior Representative" on the scene. There is no mechanism at the Washington level (either at DOE or DOD) to straighten this out. (22) Command and control problems plague all LIC events (Desert I and Grenada are the best examples) but the failure to manage a developing nuclear terrorism incident could have consequences far more severe than anything short of all-out nuclear war.

Kupperman and others have suggested the formation of a dedicated crisis management staff in the Executive Office of the President as the key to solving these problems. Such a staff, manned by a small number of professionals representing all departments of government, would be able to manage major crises for the President. As a command node superior to all government participants, it would be able to coordinate and deconflict the efforts of all concerned. Additionally, it would take the pressure off the NSC staff to fill such a role. It would, in fact, be collocated with the NSC staff in order to facilitate close coordination with all cabinet members. Being dedicated to the task, the President's crisis management staff would be able to "game" all terrorism (and other LIC) scenarios throughout the year. The lessons learned from these exercises could then be turned into effective plans and policies.

Combatting terrorism, like all other Low Intensity Conflict activities, is a process punctuated by events. It is, first and foremost, a management process. Resolution of the events within is never easy and never the same. Terrorism, as a species, cannot be made extinct. It can be managed, however, to the point where all citizens are protected beyond all reasonable expectations. Nuclear terrorism must be deterred,

but failing that, it must be managed in such a way that mass killing is avoided. Only the orchestrated and deliberate application of all the tools available can ensure that we are able to meet this imperative of government.

PART IV
RECOMMENDATIONS

In summary, the following recommendations are offered for consideration:

1- Require Permissive Action Links (PALs) and command disable features on all US nuclear weapons; then share the technology with nations that have developed nuclear explosive devices.

2 - Plan and coordinate with the major news organizations, public service information programs declaring that nuclear weapons are not subject to detonation by terrorists, and that nuclear power plants are not vulnerable to sabotage-induced release of radioactivity.

3 - Use US Counterterrorist Joint Task Force (CTJTF) units to periodically test the security of nuclear weapons facilities, nuclear transportation systems, and nuclear power plants.

4 - Tag all US nuclear weapons electronically to facilitate Nuclear Emergency Search Team (NEST) location efforts.

5 - Provide additional research & development funding for NEST (there is no organization in the United States that deserves greater access to state-of-the-art equipment).

6 - Create a crisis management staff within the Executive Office of the President to direct all US Government counterterrorism efforts. The commanders of both the Army and Navy components of the CTJTF should be assigned to this staff immediately upon being relieved of their commands.

7 - Completely abandon the use of man-portable nuclear weapons (this process has begun for some types of units).

8 - Accelerate the removal of nuclear weapons from overseas bases. As soon as possible, all US nuclear weapons not physically located in the Continental United States should be carried on US Navy warships or in USAF planes.

9 - Conduct frequent Command Post Exercises (CPXs) to test command & control arrangements during hypothetical incidents of nuclear terrorism.

NOTES

1. This characterization of LIC is taken from Crane, et al, "Between Peace and War: Comprehending Low Intensity Conflict"; National Security Discussion Paper, series 88-02; Harvard University; 1988.

2. Joint Chiefs of Staff Publication 1-02.``````

3. Detailed arguments regarding the possibility of nuclear terrorism are provided in Paul Leventhal and Yonah Alexander's report of the "Conference on Nuclear Terrorism: The Nuclear Dimension". This forum, held in June of 1985, has provided the most comprehensive and cogent analysis of the issue to date and has resulted in two landmark books - Nuclear Terrorism: Defining the Threat (Pergamon-Brassy, 1986) and Preventing Nuclear Terrorism (Lexington Books, 1987). Serious students of nuclear terrorism should begin with these two works.

4. Jenkins, Brian; "Is Nuclear Terrorism Plausible?"; Nuclear Terrorism: Defining the Threat; pg. 31.

5. Louis Rene Beres has written an elegant and thought-provoking chapter entitled "The Etiology of Terrorism" in the book Terrorism and Global Security: The Nuclear Threat; Westview Press; New York; 1987. Even those who disagree with Beres' conclusions will find the piece quite useful.

6. Suvurov, Victor; Inside Soviet Military Intelligence; Berkley Books; New York; 1984; pg. 175.

7. Davies, Thomas D.; "Terrorists Means and Targets"; Nuclear Terrorism: Defining the Threat; pg. 63.

8. Albright, David; "Civilian Inventories of Plutonium and Highly Enriched Uranium"; Preventing Nuclear Terrorism; pg. 266.

9. Denton, Jeremiah; Nuclear Terrorism: Defining the Threat; pg. 153. Senator Denton refers to the estimate of the Nuclear Control Institute in 1985.

10. For additional thoughts on the constraints of Low Intensity Conflict see Crane, et al. Chapter Four includes "Consider the Constraints" as one of the precepts for management of LIC.

11. Beres; op. cit.; pg. 57.

12. Vanocur, Sander; "The Role of the Media"; in Ra'anan, Uri, et al; Hydra of Carnage; Lexington Books; Lexington, Mass.; pg. 259.

13. Jenkins, Brian; Nuclear Terrorism: Defining the Threat; pg. 28.

14. Kellen, Konrad; "The Potential for Nuclear Terrorism: A Discussion"; Preventing Nuclear Terrorism; pg. 123.

15. The Nuclear Regulatory Commission maintains that its design bases for nuclear power plants include hypothetical terrorist attacks. These design bases are also reviewed periodically. The perception, however, is that these plants are vulnerable. That perception should be the target of the NRC's concern.

16. This is a generalization that could form the basis for additional measures to deter nuclear terrorism. A coordinated effort by the NRC, DOE, and DOD (with the help of the responsible media) to convince citizens, including terrorists, that radiological disaster cannot be achieved through sabotage of these facilities would contribute substantially to the public safety.

17. Kupperman, Robert; Combatting Terrorism: A Matter of Leverage; Center For Strategic and International Studies; Georgetown University; Washington, D.C.; pg. 16

18. Nir, Amiram; Responding to the Bernard O'Keefe's paper "How Can Nuclear Violence Be Prevented?"; Nuclear Terrorism: Defining the Threat; pg. 141.

19. DeVito, Donald A. and Suiter, Lacy; "Emergency Management and the Nuclear Terrorism Threat"; Preventing Nuclear Terrorism; pg. 425.

20. Ibid; pg. 426.

21. Kupperman, Robert and Kamen, Jeff; Final Warning: Averting Disaster in the New Age of Terrorism; Doubleday; New York; 1989; pg. 148.

22. One such exercise sponsored by DOE in May of 1988 demonstrated that, even though indivduals and units at the field level know what to do, the command and control mechanism to employ them effectively does not yet exist.

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